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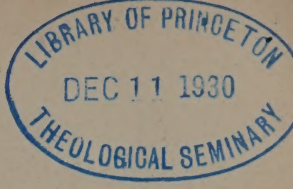

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UNITED STATES

DEPARTMENT OF THE INTERIOR

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WASHINGTON, D. C.

HOUSING AND EQUIPPING THE WASHINGTON CHILD RESEARCH CENTER

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A unique coordination of interests in child study and parent education was effected with the organization of the Washington Child Research Center. Representatives of eight organizations which have been working independently in the field of child development and parent education decided to pool their interests and efforts and create a laboratory for child study. These organizations include the Federal Office of Education, the Bureau of Home Economics, the United States Public Health Service, George Washington University, the University of Maryland, and three organizations—the American Association of University Women, American Home Economics Association, and the Committee on Child Development of the National Research Council. Representatives from each of these organizations form the present executive board of the Washington Child Research Center. The program determined for the center required a nursery school of normally developed 3-year-old children as a laboratory for research, and facilities for conducting a behavior clinic.

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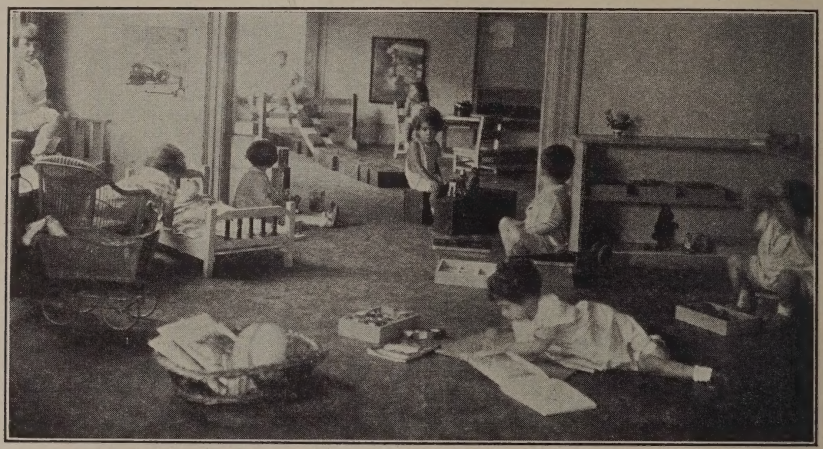
One of the first problems faced by the executive board was to find a suitable building for the center and to equip it. This responsibility was given to a housing committee.[1] The adventure involved in securing and equipping the house was so illuminating that the committee was asked to prepare a report of its work.

As a result, the several tasks involved in the selection and reconstruction of a building, and the purchasing and construction of equipment necessary to meet the needs of a research center and its laboratory are described in this report. An attempt has also been made to indicate the educational principles which guided the work.

Selecting the House

Many plans for housing the center were considered—to lease land and build a 1-story house on the plan of a Chinese compound, to



Large playroom made possible by opening sliding doors. Note the carpenter-built doll's bed, hollow-box building blocks, section of fencing with balance board and wooden supply boxes, some of which are partitioned. Also note window seat over the radiator, celotex display space on the wall, linoleum floor covering, nontipping stool, and the open supply shelving

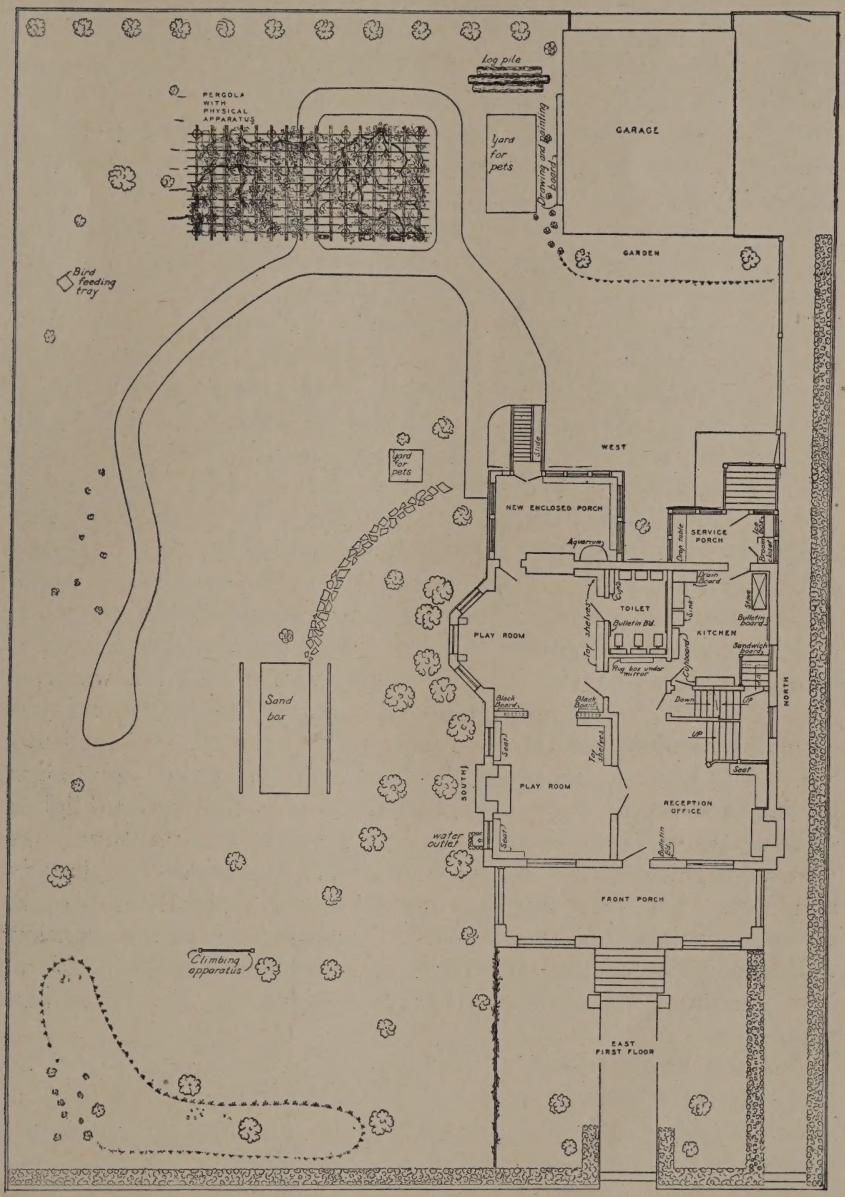
secure rooms in a public-school building, and to adapt garages or a residence to meet the center's needs. During the search for available property many questions arose which developed the following criteria:

The Site

Location of property.—(1) In or near a residential district in which there are young children; (2) situated as centrally as possible for all the coordinating organizations, and fairly near the center of the city; (3) easily accessible by street car or bus; (4) if possible, near an orphan asylum, children's hospital, or other child-caring organization through which control groups of chilren might be obtained.

[1] Housing committee: Anna E. Richardson, field worker in child development and parent education, American Home Economics Association; Grover E. Kempf, surgeon, U. S. Public Health Service; Mary Dabney Davis, specialist in nursery-kindergarten-primary education, U. S. Office of Education.

Size and situation of grounds.—(1) Adequate play-yard space; (2) grounds well drained, exposed to morning sunlight, and free from encroaching buildings that would interfere with free circulation of



This diagram shows location of the house on the plot, zoning of play apparatus in yard, and arrangement of first-floor rooms. Housekeeper's quarters and children's coat rooms are in basement. Offices, library, and children's sleeping rooms are on the second and third floors.

air; (3) yard, regular in shape and securely fenced; (4) removed from excessive noise, dirt, and confusion of traffic.

City regulations.—(1) Proper consideration of zoning laws for establishing schools in residential districts.

Exposure.—(1) Southern and eastern exposures to assure adequate sunshine; (2) play-room exposure protected from adjacent buildings by play yard.

Structure.—(1) Strong and well built; (2) tight floors, windows, and door frames; (3) outside play-room doors protected with vestibules; (4) low window sills to admit a maximum amount of direct sunshine and to allow children to see out easily; (5) stairs broken by landings; (6) simple architecture.

Number and arrangement of rooms.—(1) For the nursery school—playrooms, toilet, sleeping, and examination rooms, kitchen, and adequate closets or spaces for constructing them, all located on first two floors of the building; (2) offices—for the director, for clerical, research, and teaching staffs; (3) living quarters for a resident housekeeper; (4) halls and rooms adapted to route children on arrival for physical examination, necessary changes of clothing, toilet needs, and entrance to playrooms and playyard; (5) rooms arranged compactly to insure economy of effort for supervision of children's activities, and to make adjustments for group meetings; (6) toilet facilities easily accessible from play and sleeping rooms and playyard; (7) director's office and waiting room easily accessible to main entrance.

Service systems.—(1) Heating plant—test adequacy of heating plant and if necessary determine the amount of additional radiation the furnace might carry (also consider respective merits of hot water, hot air, or steam heat); (2) gas service—discover regulations governing size of meter required for service rendered, and for type of institution registering for the service; (3) electric service—insure adequate lighting for halls, rooms, stairways, porches, and closets (overhead lighting systems throw fewer shadows and give better general illumination than side lights); outlets are needed for service in the kitchen, laundry, and rooms requiring supplementary heat; (4) plumbing—examine sewerage outlets to determine their capacity for carrying additional toilets; consider adaptability of house construction to installation of new plumbing connections; determine adequacy of present water supply.

Business arrangements.—(1) Assure adequate lease with option of renewal; (2) secure permission for reconstruction of building, and determine responsibility for returning it to original condition at termination of lease; (3) hold owner responsible for dry cellar, tight roof, weatherproof outside construction of the house, and adequate water, heating, and lighting systems.

The greatest difficulties encountered in finding a house for the Washington center were adequate yard space, southern and eastern exposure, and satisfactory lease for the property. Finally, a detached

12-room brick house was found which met the major requirements. The distribution of rooms adapted for the center's programs can be seen in the diagram.

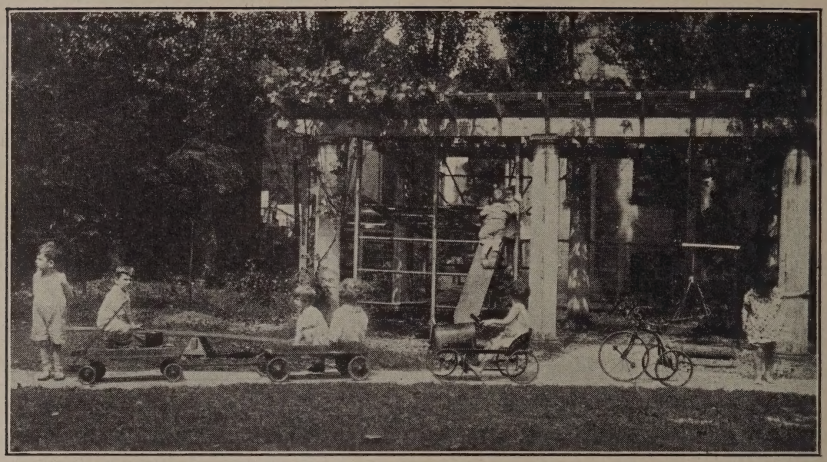
Reconstructing the House

Major items of reconstruction in the house selected included converting the butler's pantry into a toilet room, inserting two windows in the south wall of the front playroom, cutting a door from the hall directly to the basement stairway, adding a sun porch with a deck roof at the back of the house, and rearranging the basement to provide a suite of rooms for the housekeeper, in order to isolate the furnace room in which an oil burner was installed, and to provide ample space for the children's coats and hats and a toilet room for them near the basement entrance.

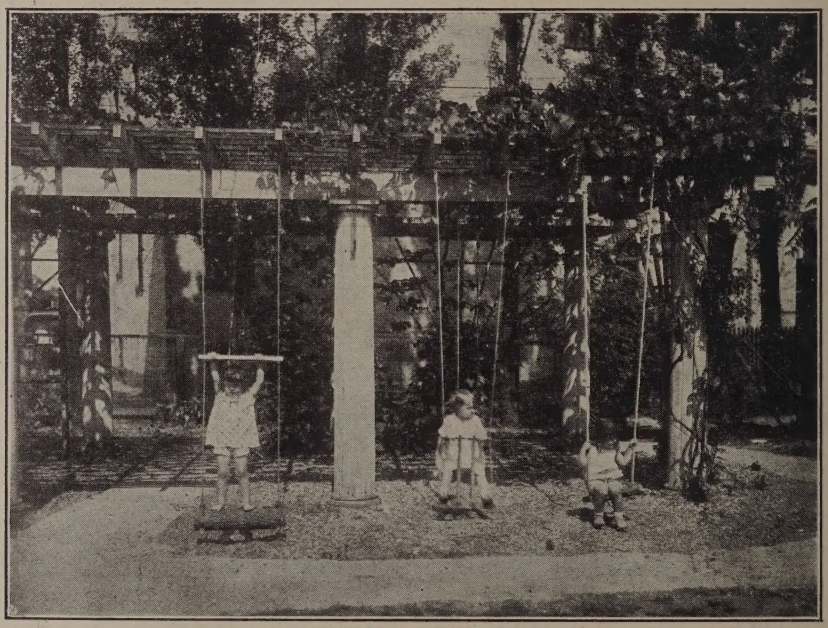
Plans for these adjustments and for the interior decorating were based on certain definite ideas of the kind of surroundings which should be prepared for children, parents, and staff using the research center. These ideas and illustrations of the way in which they were demonstrated are summarized in the following statements:

Space, actual and effected.—A house in which 25 three-year-old children, a teaching staff, as well as students and visitors are moving about, must have space enough and proper adjustment of equipment to avoid congestion and confusion. Rooms in the house selected for the research center are not large, about 14 by 15 feet on the average. Every effort was made to conserve all available space and to effect space by the manner in which changes in structure were made and in which equipment was installed and by the scheme for decoration. For example: (1) All unnecessary decorative features which either actually occupied space or seemed to do so were removed. These included paneling on the walls, ornamentation on woodwork, overhanging cupboards, and a superfluous fireplace. (2) French doors were installed where doors were needed. (3) New windows were made as wide as possible, though the height corresponds with others. (4) Cupboards, simple in design, were installed close to the walls. (5) A uniform color for walls was used throughout the house, and in each room the walls and equipment, or the woodwork and equipment, were kept the same color.

Light, actual and simulated.—Light, adequately capitalized, creates a desirable atmosphere of life and vitality. This requires adding, reflecting, simulating, and softening sunshine. More direct light was provided by adding the sun porch, by replacing stained-glass window panels with clear glass, and by cutting two windows in the south wall of the playroom. Sunlight was reflected or simulated (1) by using a cream-colored wall paper or wall paint in all rooms; (2) by painting the trim in the basement coat room a Chinese red; (3) by painting interiors



Pergola at rear of yard supports both climbing and swinging apparatus. The cement walk not only provides a proper surface for the use of wheel toys, but is so laid that it satisfies the children's desire for adventure



Swings of different types installed in the other end of the pergola; log swing for arch development, self-propelled swing, and the customary swing with a board seat

of all closets and cupboards cream color; (4) by using light-colored window shades; and (5) in the north windows using transparent, luminous, window hangings. Brilliant sunshine in the playrooms was softened by painting the trim a soft, luminous, green-blue color.

A setting for effective work.—A physical set-up that insures economy of effort aids efficient work. A homelike atmosphere is also an aid, particularly in a situation in which natural reactions of young children and their parents are essential to the work under way. Economy of effort was cared for (1) by providing easy access of the nursery-school playrooms to the kitchen, coat room, playground, sleeping and

Pantry converted into first-floor toilet room. Bathroom equipped with junior size fixtures; height of basin, 21 inches; of toilet, 10 inches. Note the lever faucet handles

toilet rooms, and easy access of the director's office to the clerical, study, and examination rooms; (2) by convenient arrangements of cupboards for food and dish storage, of tables and shelves for work bases, of refrigerator and cleaning equipment cupboard on the service porch; (3) by an outdoor storage space to protect the children's playyard toys and apparatus; (4) by fencing the playyard so as to combine all play space within one unit; (5) by installation of electric outlets and fixtures in strategic places; (6) by using linoleum floor coverings to deaden sound, and to facilitate cleaning of the playrooms, kitchen, and children's toilet; (7) by using gloss finish paint in the children's rooms to assure ease in cleaning; (8) by installation of an

automatic furnace heater to provide even temperature with a minimum amount of attention; (9) by installation of bulletin boards to care for notices to staff and parents, for menus and receipts, and for records of the children's activities. Both homelikeness and economy of space were considered by building visitors' benches over exposed radiators in the playrooms, by the informal combination of a waiting room and clerk's office in the entrance hall, and by the arrangement of furniture in the library and staff offices.

An architect was engaged to draw plans of the house and to write specifications for the work to be done. This was necessary to obtain proper building permits and to guide contractors in making their estimates. It also helped the committee to visualize proposed structural changes.

Estimates were submitted by contractors for the construction work, for decorating, for plumbing, and for electrical work. These estimates indicated details of the work to be done and the great need for forethought to avoid making changes in specifications after bids were accepted. Eliminations and substitutions were made in the work anticipated when all proposed work proved financially impossible. For example, the cost of reconstructing the upstairs bathroom and installing six junior-size fixtures was about equal to the cost of constructing a sun porch. Money was available for just one of these items, and the porch was chosen. This decision later proved to be of educational benefit. Steps and benches were designed to help the children adjust to adult-sized toilet fixtures.

Work was started the first week in January, 1928, and the nursery school was opened February 22. A summary of the money expended for reconstruction work follows:

General contractor—for general repairs, replacing stained glass with clear glass, building lockers and cupboards, adding French doors, cutting new windows, fencing yards, building sun porch	$1. 670. 18
Decorator—for removing old paper, repairing plaster, and papering entire house; for refinishing all woodwork; for painting completely bathrooms, kitchen, playrooms, and basement coat rooms; for painting porches and outside trim	1, 015. 40
Plumber—for installing 3 junior-size toilets and basins, 1 service sink, 1 foot tub, radiation for new porch and for 2 other rooms	1 130. 00
Electrician—for installing flood lights in hall, new sun porch, third-floor rooms, and basement; for removing heavy ornate chandeliers; for cutting and plugging all gas outlets from lighting fixtures and fireplaces; for installing doorbells and buzzers in the offices	152. 98
Architect's fee	65. 00
Total	4, 033. 56

Equipping the Nursery School

Certain factors which need to be considered in planning equipment for a nursery school include (1) the purpose for which equipment is to be provided, (2) the physical make-up of the equipment, (3) its availability on the market, and (4) the practicability of building it.

The following descriptions of these factors can be applied to the educative equipment for all nursery schools.

Criteria for the use of equipment.—Play apparatus should use and coordinate the child's larger body muscles, especially those in the abdomen, back, chest, arms, and legs. The way these muscles are used should assure right body development and correct posture. Equipment provided for this purpose should stimulate activities of stretching, pulling, balancing, jumping, and hanging. For these purposes special consideration should be given to the equipment, as follows: The size and weight of movable portions of apparatus must provide easy manipulation for the children, yet weight enough to offer resistance. Materials which a child handles by himself may weigh 3 or 4 pounds, while larger materials generally carried by two or more children may weigh 8 or 9 pounds. The exercise of lifting is especially desirable for developing back muscles. The test of the maximum load a child should lift is determined by his posture in lifting.

The equipment should be designed so as to invite and sustain the child's interests, appeal to his growing mind, and offer opportunities for the developmental needs of his growing body. The equipment must therefore be manipulative rather than mechanical. It should suggest a varity of activities rather than dictate certain ones. Adjustability, which makes it possible to raise or lower, lengthen or combine parts of the apparatus, adds vitality to what might otherwise be unmotivated activity of the 3-year-old. Though adjustability adds to the initial expense of the apparatus, it is more than compensated for by continued interest in its use, and by the encouragement it gives to initiative, ingenuity, and constructive activity. It also fosters courage and cooperation. It meets individual differences in rates of physical growth and provides opportunities for social adjustments. Equipment which meets these needs includes balance boards of several widths and thicknesses which may be used in combination with wooden horses or ladders for climbing,balancing, jouncing, etc.; ladders with and without adjustable rungs; seesaws; rolling box; rocking-board and rocking-horse; swings; knotted rope; swinging rings; wagons; and varieties of wheel and pedal toys.

Sensory motor control and development through use of the smaller body muscles may be cared for by satisfying the desire of young children to manipulate, to take apart and put together, to sort, to investigate, to collect, and to possess the things which have to do with

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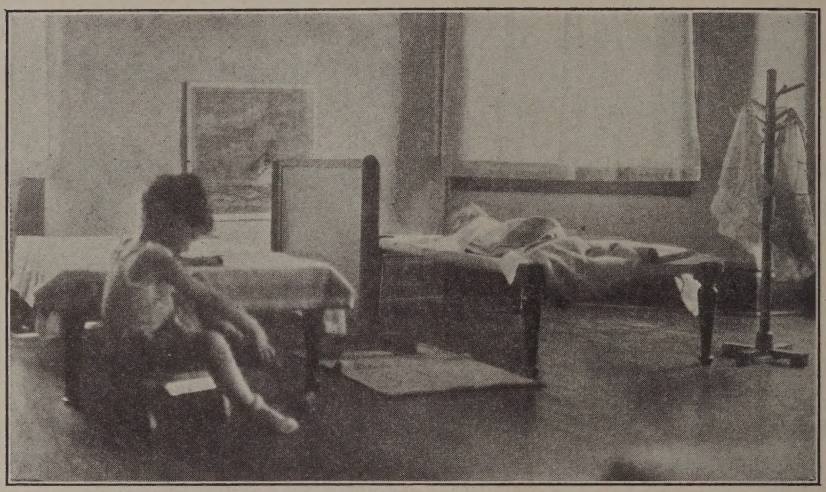
the welfare of his immediate person. Through using some of the following materials this development takes place, and the child also becomes acquainted with texture, size, mobility or stability, weight, color, and usability of things with which he comes in contact in his environment. These materials include *sorting and fitting materials,*



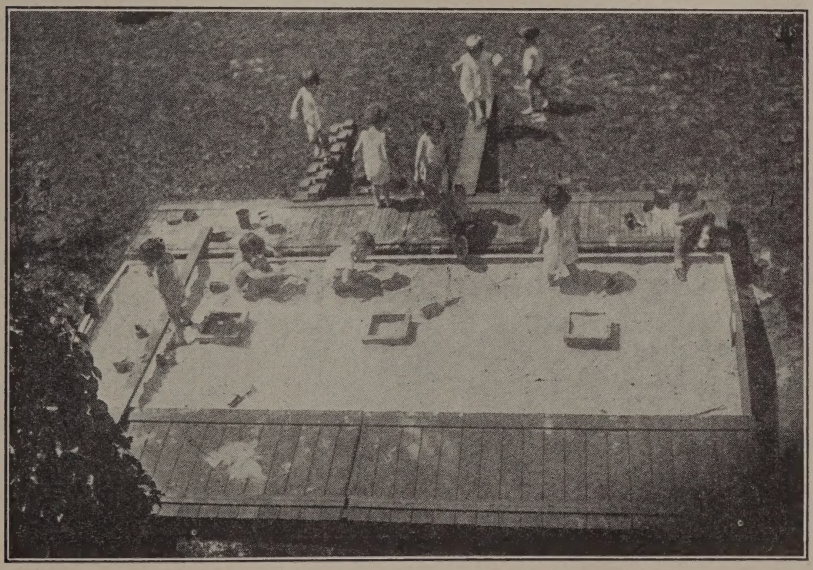
Sleeping equipment in use

such as spools, bath tiles, large nuts, small pill boxes, odd-shaped blocks, large buttons, puzzles, interlocking toys, pegs, beads, insets, buttoning belts; *art materials,* such as paper, crayons, chalks, paint; *plastic materials,* such as plasticine, clay, soil, gravel, and water; *construction materials,* such as building blocks, hammer, nails, soft-wood or cork; *tossing, rolling, feeling, and weighing materials,* which, in addition to many of those already mentioned, include balls, textiles, stones, sticks, etc.

Aside from the social coöperation developed through attention to other developmental needs, equipment should satisfy the child's desire to imitate life about him in his social and family relationships, and it should provide experiences with animal and plant life. The importance of opportunities for observation and understanding of the phenomena of life processes which nature experiences provide can not be overestimated. In addition to materials already listed, equipment which will satisfy those needs includes: (1) Playthings, such as dolls, doll housekeeping furniture, wooden and stuffed toy animals, autos, trains and smallwheeled toys, and picture, story, and song books; (2) actual housekeeping equipment, such as dishes, silver, napkins, service mats, doilies, vases, brooms, mops, dustpans, dusters, and dishwashing paraphernalia; (3) cages and inclosures for pets, aquaria for fish and tadpoles, garden space, and bird-feeding stations.

Most of the development of right mental and physical habits in the nursery school depends upon the way in which the use of equipment and apparatus is guided by the teacher. It is well to provide a limited number of favored kinds of equipment, allowing the children an opportunity for sharing, waiting turns, and consideration for the rights of others. Identification marks give the child a sense of ownership for his own individual equipment. Materials used in developing personal hygiene habits should be fitted to the size and ability of the children and be accessible during the day's activity.

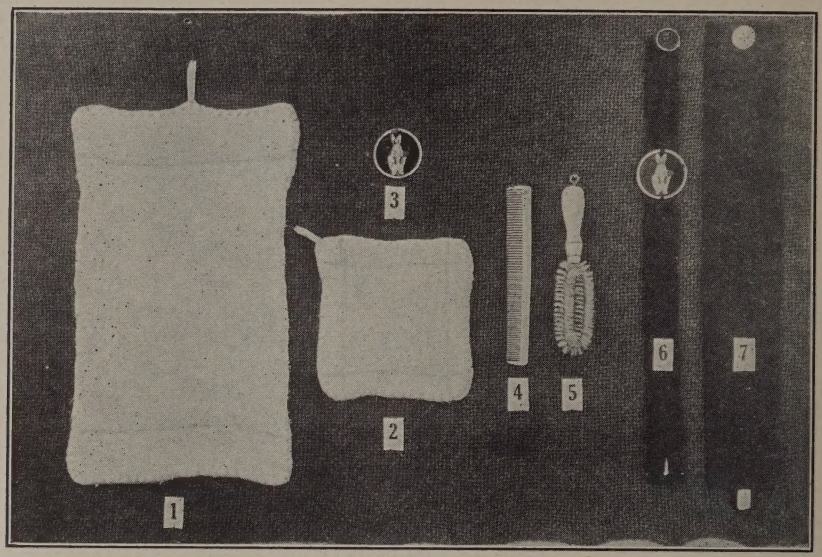
Selecting purchasable equipment.—Some of the equipment and play materials may be purchased ready made. Such equipment needs careful selection to insure its adaptation to nursery-school usage. The following suggestions developed when purchasing equipment for the Washington center: (1) Cot beds—two types available, folding and stationary. Points to consider are body posture, sanitation, economy of space, use in research studies. (2) Sheets may be purchased economically in correct sizes. The 68-inch single blankets, cut in half and bound, are practical and economical. (3) Towels, wash cloths, and bibs are best made of soft absorbent material which



When the sand box is opened, the covers provide additional play space. Hollow square cover supports in the middle of the sand box are especially intriguing for the children's play

can be easily laundered and used rough dried. Wash cloths, 6 by 6 inches, are small enough for most of the water to be squeezed from them by the small child's hand. (4) Table mats of colorful waterproof material, shellacked on the under side to prevent curling, are attractive and economical. (5) Fabric serving trays are small and light in weight.

(6) Service china of strong biscuit ware does not chip easily. A non-cracking medium glaze and a colorful and simple decoration are desirable. Plates and bowls should be deep enough to hold average portions of food and should have plain round edges to aid children in carrying them. Pitchers should have handles which children can



Individual equipment for developing habits of personal hygiene: (1) Turkish towel, 9″ by 16″; (2) wash cloth, 6″ by 6″; (3) identification tag used for bathroom equipment, cot bed, blankets, floor rug, chair, and cupboards for wraps and clothes; (4) comb; (5) nail brush; (6 and 7) two types of easy-buttoning belts used to hold resting rugs. This rug, made of cotton baling dyed in bright colors, is used as the background for the picture

grip easily, and the lip should be accentuated to facilitate pouring. Pitchers and glasses must stand firmly. All serving dishes should be covered and of heavy crockery so as to maintain heat. (7) Silver of child size should include a rounded spoon and a straight-sided wide fork with rounded tines. Additional pieces of adult size are required for the teaching staff. (8) For cleaning facilities, small mops, brushes, pails, and cloths should be made easily accessible. (9) Chairs should be purchased in at least three heights—8, 9, and 10 inches. Tables should, accordingly, range from 17 to 19 inches in height.

Constructed equipment.—For the sake of economy, to meet the needs of the children, to be suggestive to parents for home reproduction, and to take advantage of the house and grounds secured for the Washington center, most of the equipment was constructed by carpenters. Such equipment included the following: (1) A slide board 12 feet long was incorporated in the stairway leading to the playground from the sun porch. (2) Climbing apparatus and swings were installed in a pergola already in the yard. (3) A sand box was designed to fit a large space in the yard well exposed to sunshine and partially sur-

rounded by shading bushes. (4) Tables, benches, large drawing easel suitable for continued use out of doors, and animal pens were constructed. (5) Hollow boxes for indoor and outdoor building blocks were made at a box factory. (6) Wooden supply trays, stools, a rocking horse, a doll's bed, a wardrobe box, and a table were constructed.

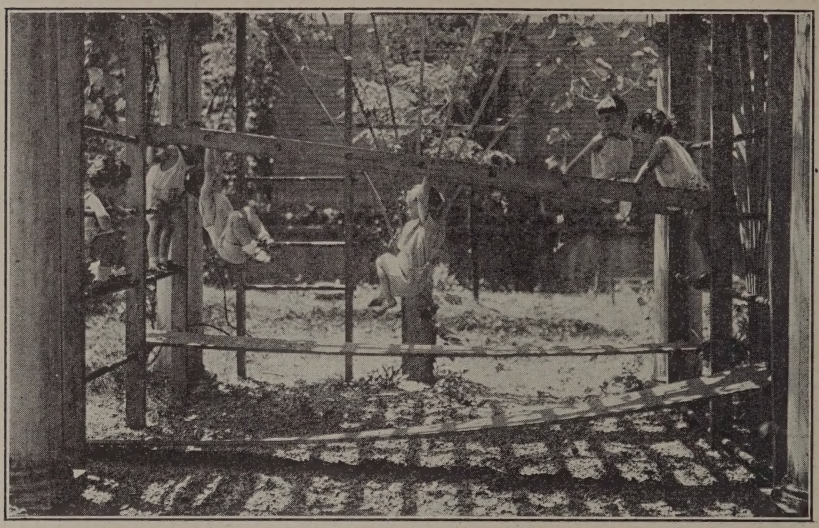
Many Things to be Considered in Planning Equipment for a Center

In planning both the purchased and the constructed equipment for a nursery school, at least three major factors must be considered: First, the vigorous manipulation to which equipment is constantly

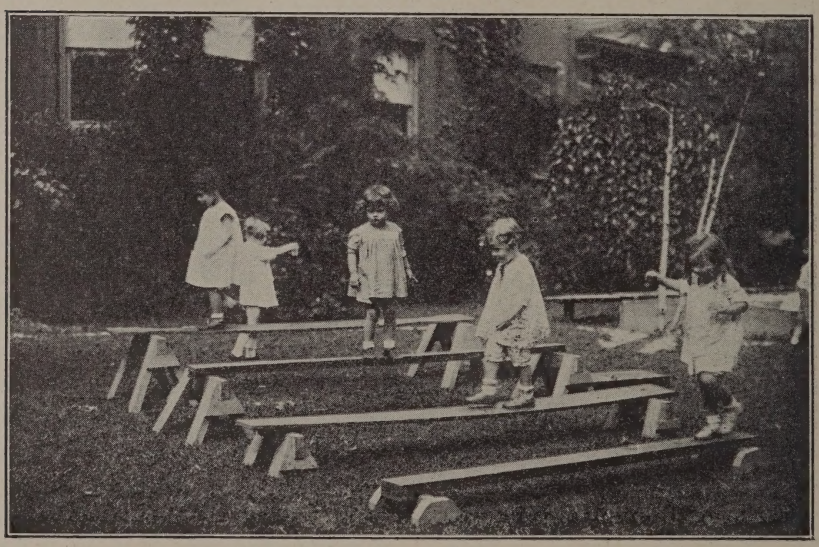
Luncheon service equipment: (1) Self-help bib of white ratiné with colored binding; (2) waterproof plate doily and silver; (3) pitcher with good gripping handle and well-defined lip; (4) china service of tea plate, cereal bowl, and sauce dish; (5) heavy glass with narrow grip; (6) papier-mâché tray; (7) vase for table flowers; (8) basket for carrying silver and teachers' service

subjected both indoors and out of doors; second, the need of frequent washing and sterilizing of both play materials and of apparatus, for purposes of sanitation; and, third, the immediate needs of the children concerned. These details are described in the captions accompanying the photographs and drawings. Other ideas to be considered in

making equipment include the following: (1) Take advantage of all features in the house or on the grounds which suggest possible play apparatus or devices which may aid teaching techniques. (2) In



Stationary and adjustable ladders and boards in one end of the pergola give opportunity for such activities as climbing, balancing, jouncing, and sliding



Boards of different widths and thicknesses, used with "horses" of varying heights, offer increasingly difficult problems in motor control

rented property install structural equipment in the house with screws and bolts, rather than nails, to assure ownership and to facilitate possible moving. (3) Wooden or large cotter pins are the best fastenings for adjustable apparatus. (4) All exposed corners should be

rounded and edges beveled. (5) For cupboards, wood should be properly mitered at the corners in order to provide strength and at the same time avoid the necessity of unsightly supports. (6) Such wood substitutes as beaver board and Celotex are excellent material for bulletin boards, screens, and backs of cupboards. (7) Stock D white pine is a satisfactory wood for most equipment. However, wood should be adapted to the use for which it is designed and should be selected for its flexibility, weight, size, and its nonwarping, nonrotting, nonsplintering, and seasoned qualities. (8) All equipment should be finished with bright-colored paint or oil. (9) Portable apparatus may be used both for indoor and outdoor play. (10) For the use of wheel toys it is essential to have cement walks for play space. Adventure is provided for children by laying a winding walk among shrubbery and structures. (11) Placement of outdoor equipment should be so zoned that group interests are divided.

Summary of Equipment—Purchased, Constructed, and Loaned

Dining-room equipment:	
Furniture—Round tables, 36-inch, drop-leaf, 18 inches high, 4 at $12.50, shipping costs, $5.40; chairs, 9 to 11 inches high, 30 at $4 (10 per cent discount), unpainted; paint, 3 coats for tables and chairs, $15.27; 4 serving tables, charged under construction	$178. 67
Dishes—4 dozen 8-inch tea plates; 3 dozen sauce dishes; 3 dozen cereal dishes, $39.54; 11 pitchers—1 3-quart with lid, 1 2-quart, 2 1-quart, 7 1-pint, $9.91; 4 dozen glasses, $1.20	50. 65
Silver—4 dozen children's spoons; 2½ dozen children's forks; ½ dozen each—tablespoons, knives, forks; 1 dozen teaspoons	24. 17
Trays—6, white fabric	3. 24
Oilcloth—3 yards for table doilies, donated.	
Total	256. 73
Bathroom equipment:	
Linen—3 dozen, 6 by 6 inch wash cloths; 4 dozen, 9 by 16 inch towels	5. 34
Toilet articles—25 combs; 25 nail brushes; 2 bath stools; 2 toilet-seat insets; 10 dozen hooks; 3 paper-towel cabinets, furnished with order for towels; steps, benches, and toilet-paper racks, charged under construction	11. 25
Total	16. 59
Sleeping equipment:	
Cots—8 stationary, at $13.50; 12 folding, at $7 less 20 per cent	175. 20
Bedding—4 dozen sheets at 58 cents apiece; 8 blankets at $2.95, 4 at $3.95; labor for cutting and binding blankets, $12.18	79. 42
Miscellaneous—2 bed screens; 4 costumers, charged under construction.	
Total	254. 62

Kitchen equipment:	
Linen—2 dozen towels; 2 dozen dishcloths	$9.00
Kitchen utensils—	
2 large casseroles; 3 dozen custard dishes	7.75
1 each—meat chopper, pail, set of saucepans, pitcher, double boiler, collander, dish pan	9.00
1 each—aluminum pan, bread knife, butcher knife, can opener, potato ricer, flour sifter, bread box, salt and pepper boxes, dish drainer, ice pan, egg beater, cabbage slicer, egg slicer, mixing bowl; 4 paring knives; 3 each, teaspoons and tablespoons	17.53
2 each—mixing bowls, dippers, baking pans, strainers, spatulas, galvanized spoons, aluminum spoons, wooden paddles, apple corers, small bowls; 1 each—dishpan, saucepan, collander, grater, fork, lemon squeezer, orange squeezer; 6 bread pans; 3 wooden spoons; 5 measuring cups; 24 large glass jars; 1 set scales; and 1 refrigerator	(Loaned.)
Housekeeping utensils—3 each—aluminum trays, children's mops and brooms; 1 each—carpet sweeper, electric iron, garbage can, broom, brush, dustpan, mop, soap dish, window washer; 1 porcelain table top; 6 pot holders	20.93
Total	64.21
Play materials:	
Wheel toys—3 wagons, $6.50; 1 each—wheelbarrow, $1.50; pedal bike, $2.50; bicycle, $10.50; stick horse, 45 cents; tricycle and large wagon (loaned)	21.45
Doll equipment—3 dolls at $1; 2 wicker child rockers at $4.45; 1 each—doll carriage, $2.09; table, bed, and wardrobe box, carpenter-made; bed mattress and pillows, $1.75; washing set, 50 cents; teddy bear, $1.75	17.99
Graphic material—3 tons sand at $10; bogus paper, $1.80; newsprint, $2.50; crayons, $3; chalks, $1; paintbrushes, $2.65; showcard paint, $1.50; clay and plasticine, $1.40	43.85
Toys—2 dozen 6-inch wooden animals, contributed; 9 balls, 8, 6, 4, and 3 inches in diameter, $2.73; auto, $1; train, 65 cents; fire engine, $1.25; tractor, $1; hook and ladder, $1.25; horse, $1; elephant, $1; rabbit, dogs, ducks, $1.50; beads 1-inch, colored, wooden, $5; shoe strings, 64 cents; hammer and nails, 20 cents; sand toys—12 shovels, 6 sprinklers, 6 pails, sand dishes, $5.05; garden tools, $1.50; design set, $1.50	25.27
Blocks—25 indoor building blocks, 5 by 8 by 11 inches, $6; 15 outdoor building blocks, 5½ by 11½ by 25½ inches, $4.95; color cubes, $4.75	15.70
Miscellaneous—Pictures and picture books, $6.15; peg boards and insets, made by carpenter; baskets—berry, bushel, half-bushel, and hampers, $5	11.15
Total	135.41
Play apparatus:	
1 section indoor fence; 1 each—indoor and outdoor balance boards with rubber treads, rocking board, rocking-horse, sand box, cheese box, slide built into steps; 4 each—swings, climbing ladders (3 stationary, 1 movable); 7 boards; 10 sawhorses (5 sizes). For materials, labor, and paint	422.84

Examination equipment:	
Examination table, $27; 2 stethoscopes, at $2.25; 2 percussion hammers, at $1.75; hemoglobin scale and needle, at $1.55; examination blanks, $5; 1 dozen test tubes, 45 cents; 2 measuring scales, at $1.20; 1 child's table, $1	$45. 40
Office equipment:	
1 each—typist desk, secondhand, $22.50; library table, $45; magazine table for reception room, $8.50; 2 each—filing cases, secondhand, $25.25; sanitary couches, $14.95; couch covers, $10.75; 2 typewriters, at $70; 3 desk trays, $1.45; rugs, $98; 5 wastebaskets (no charge)	366. 40
1 each—filing table, small library table; 2 desk chairs; 4 office desks; 5 each—small study tables, straight wooden chairs, Windsor chairs, upholstered chairs	(Loaned.)
Miscellaneous:	
Linoleum, $262.80; window shades for entire house, $48.75; curtain materials, $26.53; curtain rods and brackets, $17.83; piano, $250; lamp shade for playroom, $7.50; 4 doormats, $5.85; hardware, etc., $20.24	639. 50

Summary of equipment costs:

Dining room	256. 73
Bathroom	16. 59
Sleeping room	254. 62
Kitchen	64. 21
Play materials	135. 41
Play apparatus	422. 84
Examination room	45. 40
Offices	366. 40
Miscellaneous	639. 50
Grand total	2, 201. 70

Equipment designed for the nursery school adapted by parents for the home playyard

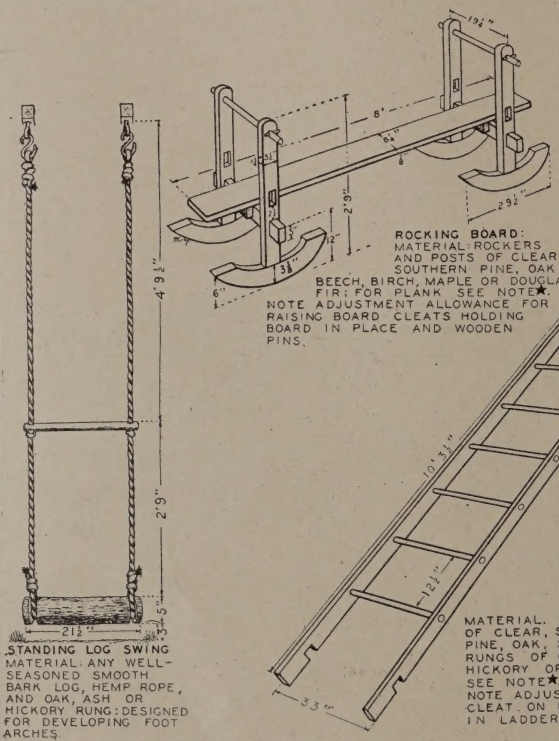
WORKING DESIGNS OF PLAY APPARATUS AND OTHER EQUIPMENT CONSTRUCTED FOR THE NURSERY SCHOOL LABORATORY OF THE WASHINGTON CHILD RESEARCH CENTER

WOODS LISTED FOR EACH OF THE FOLLOWING ARTICLES HAVE BEEN SELECTED ACCORDING TO THEIR SUITABILITY FOR THE PURPOSE INTENDED WITH DUE CONSIDERATION FOR SUCH FACTORS AS STRENGTH, RESISTANCE TO DECAY, FLEXIBILITY, SPLINTERING, AND AVAILABILITY. THE USE OF THOROUGHLY SEASONED WOOD WILL TEND TO ELIMINATE WARPING. SECOND-HAND LUMBER CAN BE USED IN MANY INSTANCES. CONSTRUCTION SHOULD BE STRONG ENOUGH TO RESIST CHILDREN'S VIGOROUS MANIPULATION.

OUTDOOR EQUIPMENT SHOULD BE KEPT WELL PAINTED AS PROTECTION FROM THE WEATHER A SATISFACTORY UNDERCOATING CONSISTS OF ALUMINUM POWDER AND HIGH GRADE SPAR VARNISH,- TWO POUNDS OF POWDER TO A GALLON OF VARNISH. GIVE TWO COATS OF THIS MIXTURE, ALLOWING 24 HOURS BETWEEN COATS, AFTER WHICH ONE OR TWO COATS OF LEAD AND OIL OF ANY DESIRED COLOR MAY BE APPLIED.

DIMENSIONS IN THE FOLLOWING DIAGRAMS ARE DESIGNED FOR 3-YEAR-OLD CHILDREN AND SHOULD BE ADAPTED FOR THE USE OF OLDER CHILDREN. EQUIPMENT WITH ADJUSTABLE FEATURES PROVIDES FOR CHILDREN'S GROWTH IN STATURE, IN STRENGTH, AND IN INTEREST IN CREATIVE PLAY.

NOTE★ WOODS SUGGESTED: SOUTHERN PINE, NORTHERN WHITE PINE, NORTH CAROLINA PINE, PONDOSA PINE, SUGAR PINE, EASTERN SPRUCE, SITKA SPRUCE, CALIFORNIA REDWOOD AND WESTERN HEMLOCK. FOR SLIDING BOARDS USE EDGE GRAIN LUMBER AS A PROTECTION FROM SPLINTERS.



ROCKING BOARD: MATERIAL: ROCKERS AND POSTS OF CLEAR SOUTHERN PINE, OAK, BEECH, BIRCH, MAPLE OR DOUGLAS FIR; FOR PLANK SEE NOTE★. NOTE ADJUSTMENT ALLOWANCE FOR RAISING BOARD CLEATS HOLDING BOARD IN PLACE AND WOODEN PINS.

STANDING LOG SWING MATERIAL: ANY WELL-SEASONED SMOOTH BARK LOG, HEMP ROPE, AND OAK, ASH OR HICKORY RUNG: DESIGNED FOR DEVELOPING FOOT ARCHES.

MATERIAL. LADDER RAILS AND UPRIGHTS OF CLEAR, STRAIGHT-GRAINED SOUTHERN PINE, OAK, SPRUCE, ASH OR DOUGLAS FIR, RUNGS OF CLEAR, STRAIGHT-GRAINED OAK, HICKORY OR MAPLE; FOR JOUNCING BOARD SEE NOTE★. NOTE ADJUSTABLE RODS AND LADDER, CLEAT ON BOARD AND SAFETY NOTCHES IN LADDER.

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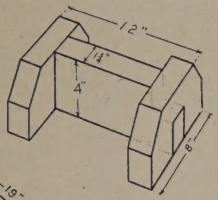
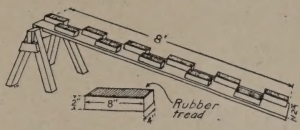
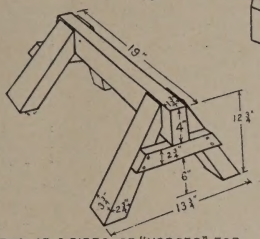
DIAGRAMS OF EQUIPMENT CONSTRUCTED AT WASHINGTON CHILD RESEARCH CENTER. #2

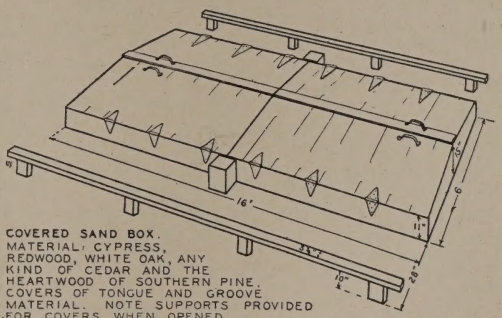




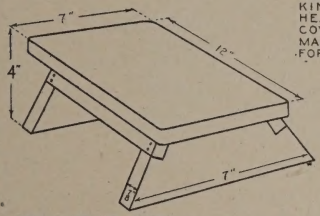
BALANCING BOARD
MATERIAL: FOR BOARD SEE NOTE★; TREADS OF USED LUMBER OF ANY KIND TOPPED WITH RUBBER MATTING.



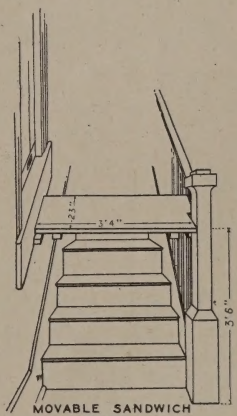
TWO OF 5 SIZES OF "HORSES" FOR BALANCE BOARDS.
MATERIAL: CLEAR SOUTHERN PINE, DOUGLAS FIR OR OAK. NOTE CONSTRUCTION TO INSURE STABILITY



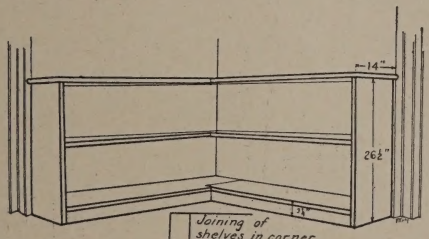
COVERED SAND BOX.
MATERIAL: CYPRESS, REDWOOD, WHITE OAK, ANY KIND OF CEDAR AND THE HEARTWOOD OF SOUTHERN PINE. COVERS OF TONGUE AND GROOVE MATERIAL. NOTE SUPPORTS PROVIDED FOR COVERS WHEN OPENED.



NON-TIPPING STOOL.
MATERIAL: ANY CLEAR STOCK.
NOTE ROUNDED CORNERS AND SPREAD OF LEGS TO INSURE STABILITY.



MOVABLE SANDWICH BOARD.
INSTALLED OVER SERVICE STAIRS IN KITCHEN SUGGESTS OPPORTUNITIES TO USE SPACE AND TO INCREASE EFFICIENCY IN PREPARING MEALS.



TOY SHELVES
MATERIAL: ANY FINISH ALREADY IN THE ROOM
LUMBER CONFORMING TO THAT NOTE CONSTRUCTION

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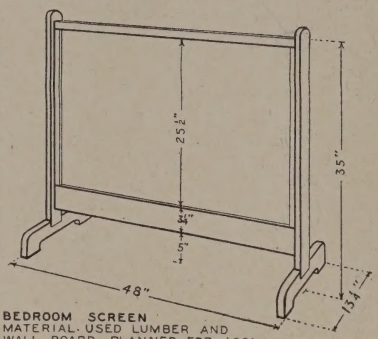
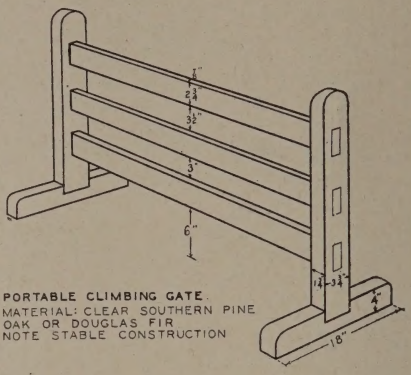
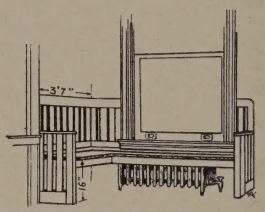
DIAGRAMS OF EQUIPMENT CONSTRUCTED AT WASHINGTON CHILD RESEARCH CENTER. #3



BEDROOM SCREEN
MATERIAL: USED LUMBER AND WALL BOARD PLANNED FOR ISOLATION OF RESTLESS CHILDREN FROM GROUP IN SLEEPING ROOM

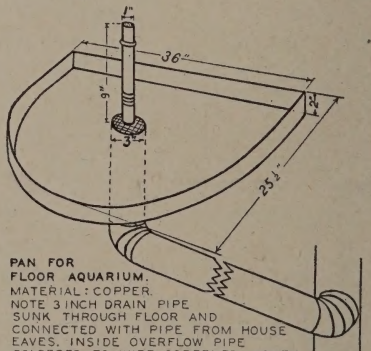


PORTABLE CLIMBING GATE.
MATERIAL: CLEAR SOUTHERN PINE OAK OR DOUGLAS FIR
NOTE STABLE CONSTRUCTION



BENCHES FOR VISITORS.
MATERIAL: ANY FINISH LUMBER CONFORMING TO THAT ALREADY IN THE ROOM

COMBINATION BLACKBOARD AND EASEL.
MATERIAL: FRAMED BEAVER BOARD, PAINTED BROWN.
NOTE CHALK BOXES, FRESCO PAINT CUPS AND TILT OF BOARD



PAN FOR FLOOR AQUARIUM.
MATERIAL: COPPER
NOTE 3 INCH DRAIN PIPE SUNK THROUGH FLOOR AND CONNECTED WITH PIPE FROM HOUSE EAVES. INSIDE OVERFLOW PIPE SOLDERED TO WIRE SCREENED MOUTH OF DRAIN PIPE. WITHIN THIS PAN, 2 LAYER OF BRICKS SERVED AS FOUNDATION FOR TILE AND CEMENT WORK

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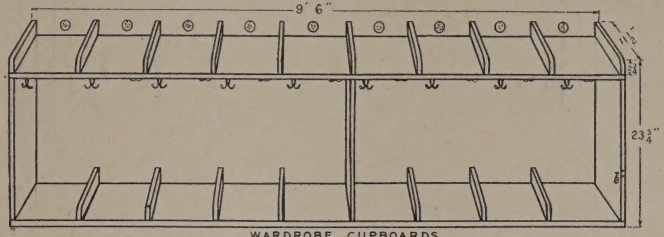
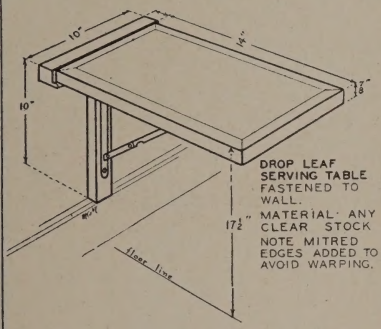
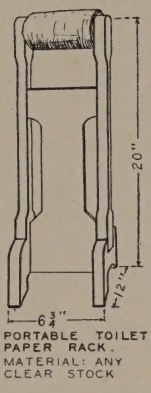
DIAGRAMS OF EQUIPMENT CONSTRUCTED AT WASHINGTON CHILD RESEARCH CENTER. #4



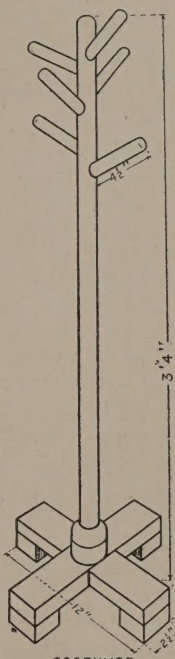
WARDROBE CUPBOARDS.
MATERIAL ANY FINISH LUMBER CONFORMING TO THAT ALREADY IN THE ROOM.
NOTE RAISED FLOOR BOARD, PARTITIONS, AND IDENTIFICATION TAGS.



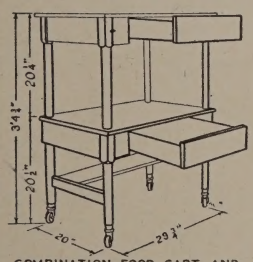
DROP LEAF SERVING TABLE FASTENED TO WALL.
MATERIAL: ANY CLEAR STOCK
NOTE MITRED EDGES ADDED TO AVOID WARPING.



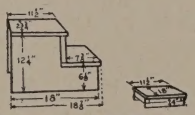
PORTABLE TOILET PAPER RACK.
MATERIAL: ANY CLEAR STOCK



COSTUMER
MATERIALS: OLD LUMBER, WARDROBE POLES, AND DOWELL RODS.



COMBINATION FOOD CART AND SERVING TABLE.
MATERIALS. TWO PINE TABLES CUT TO 20 INCH HEIGHT. LEGS OF TOP TABLE FIT INTO SOCKETS CUT IN LOWER TABLE TOP. WHEN SERVING, THE TABLES ARE PLACED END TO END, WITH OPEN, INVERTED DRAWERS TO GIVE EXTRA SERVING SPACE



BATHROOM EQUIPMENT TO FACILITATE CHILD'S USE OF ADULT-SIZED FIXTURES.
MATERIAL: ANY CLEAR STOCK.

SOME REFERENCES TO PUBLICATIONS ON EQUIPMENT AND OTHER PLAY APPARATUS FOR YOUNG CHILDREN

Backyard playgrounds. Washington, D. C., Government Printing Office, 1923. (U. S. Department of Labor. Children's Bureau. Folder No. 2.)

Illustrated folder giving directions for making horizontal bars, baby swing, sand box, and flying rings. Approximate costs are given.

Best toys for children and their selection. Madison, Wis., Minneta S. Leonard, 2230 Van Hise Avenue, 1925. 24 p.

Practical suggestions for adapting toys to the age and temperament of the child; criteria for selection and the influence of toys on habit formation; lists of desirable toys.

The child from one to six. Ada Hart Arlitt. McGraw-Hill Book Co., 1930. 185 p.

Chapter XI, Toys, games and occupations for the preschool child. Describes the importance of selecting the right types of toys, of properly caring for them, and of their developmental values.

Children in the nursery school. Harriet M. Johnson. New York, The John Day Co., 1928. 325 p. illus.

Part II, Our planning of the environment. 1, The physical environment—activities and materials—includes a descriptive list of play equipment for a roof play space and for indoor playrooms.

Children's rompers, Leaflet No. 11, 1927; Sun suits for children, Leaflet No. 24, 1928; Play suits for winter, Leaflet 54, 1929. U. S. Department of Agriculture, Bureau of Home Economics. Washington, D. C., Government Printing Office, 1927, 1928, 1929.

Many types of play clothes for young children providing comfort and freedom of action and encouraging independence in dressing.

Equipment and supplies, nursery-kindergarten-primary. Washington, D. C., International Kindergarten Union, Committee on Equipment and Supplies, 1201 Sixteenth Street NW, 1927. 48 p.

Gives manufacturers and probable prices of educational materials for young children.

Fitting the toy to the child. Child Study, 7: 89–91, December, 1929.

Classified lists of toys for various age levels from the first through the tenth years.

Home Play. W. C. Batchelor. New York, Playground and Recreation Association of America, 1924. 32 p. (Bulletin No. 205.)

Descriptions of play for the whole family and working diagrams of play apparatus and equipment.

Housing the nursery school. Greta Gray *and* Ruth Staples. Childhood Education, 5: 33–36, September, 1928.

Specifications and floor plans for a 2-story house serving as a nursery school laboratory for the study of child development.

Interests of young children. Guidance material for Study Groups III. Lois Hayden Meek. Washington, D. C., American Association of University Women, 1928. 39 p.

Study outlines covering the values of play, and of types of educational play apparatus and toys.

A new nursery school set-up. Rose H. Alschuler. Childhood Education, 5: 307–311, February, 1929.

A description of the development of a demonstration nursery school and junior kindergarten in the public schools of Winnetka, Ill. Floor plans are included.

Nursery school equipment. Christine M. Heinig. Childhood Education, 5: 302–306, February, 1929.

Discussion includes developmental values essential for a child's play equipment and covers such factors as height, weight and size, safety, sanitation and adjustability.

Nursery school procedure. Josephine C. Foster *and* Marion L. Mattson. New York, D. Appleton & Co., 1929. 220 p. illus.

Chapter III, The equipment of nursery schools.

Discussions cover buildings and grounds, furnishings, and play materials.

The nursery that grows up. Agnes Bass. Children, The Magazine for Parents, 2: 28–29, January, 1927.

Describes how a child's room may be adapted to his changing needs and interests.

The organization and administration of playgrounds and recreation. Jay B. Nash. New York, A. S. Barnes & Co., 1927. 547 p.

Chapter XV, The preschool child—The home problem. Gives plans and diagrams for home playgrounds and play apparatus.

Outdoor equipment shelter. Emma Johnson. Childhood Education, 6: 272, February, 1930.

Photograph and description of outdoor cupboards serving to protect apparatus and to provide play houses for children.

Parents and the preschool child. William E. Blatz *and* Helen Bott. New York, William Morrow & Co., 1929. 340 p.

Chapter VI, Habits of play. Includes descriptions of the playroom, regulation of play, play materials, care of toys, outdoor play, social environment, solitary play, preschool play, age levels of social adjustment, and values of play. An outline for a study group, and two diary records of problems in child development related to play are given.

Permanent play materials for young children. Charlotte G. Garrison. New York, Charles Scribner's Sons, 1926. 118 p. illus.

A nontechnical statement of principles which should guide the selection, use and care of permanent play materials for nursery schools, kindergartens, and primary grades. Discussions of building blocks, dolls, and toys, gymnastic apparatus, books, and pictures are included.

Plans and equipment for nursery, kindergarten and primary education. Mary Dabney Davis. *In* The American school and university. New York, American School Publishing Corp., 443 4th Ave., 1930. pp. 291–302.

Details of building construction, of built-in and permanent equipment desirable for an all-round educational program with young children. Illustrated with floor plans and photographs from public and private schools and university and research demonstration schools.

Play activities in Third Conference of Nursery School Workers, Conference report. Winnetka, Ill., 795 Lincoln Avenue, National Committee on Nursery Schools, 1930. pp. 31–37.

Lists of equipment being used in nursery schools form the bases for a discussion of their educational values.

Play areas—their design and equipment. Prepared by the Playground and Recreation Association of America. New York, A. S. Barnes & Co., 1928. 206 p.

Chapter V, The children's playground, and Chapter X, Home-made apparatus. These chapters give plans for playgrounds which indicate zoning of apparatus and game areas for different ages of children. Working diagrams and descriptions of carpenter-constructed apparatus are given.

A practical psychology of babyhood. Jessie C. Fenton. New York, Houghton Mifflin Co., 1925. 348 p.

Chapter II, Play, describes the types of play activities characteristic of the first two years and gives lists of appropriate play equipment.

Preschool child study programs. Harold D. Meyer. Chapel Hill, N. C., University of North Carolina Press, 1927. 84 p. (University of North Carolina. Extension Bulletin, Vol. 6, No. 11.)

Program XI, General subject: Play opportunities. Second topic: The home playground; Indoors and outdoors. An outline for study group discussions.

Preschool and parental education. National Society for the Study of Education. Twenty-eighth yearbook. Bloomington, Ill., Public School Publishing Co., 1929. 875 p.

Chapter VIII, Child Activities: Play. Discussion of values of play, of materials and equipment, of conduct of adult in guiding activities, and an extensive bibliography covering each of these topics.

The right toy for the young child. Nell Boyd Taylor. Journal of the American Association of University Women, 22: 29–33, October, 1928. (Reprints available.)

The effect of adequate play environment upon behavior problems is discussed, and descriptions given of purchasable and homemade toys best adapted to different age levels between infancy and the age of six years.

School activities and equipment. Rose B. Knox. Boston, Houghton Mifflin Co., 1927. 368 p. illus.

Sources and prices of materials designed especially for schools but suggestive for parents and nursery school workers. Many working diagrams of equipment are included.

Selected books for young children. Alice Dalgleish *and* Selected pictures for young children, Rita Scherman. New York City, Educational Playthings (Inc.), 1930. 61 p.

Lists of domestic and foreign books and pictures grouped under headings of children's interests and listed according to ages for which they are best suited.

You can make it. Report of the Subcommittee on uses for secondhand boxes and odd pieces of lumber, of the National Committee on Wood Utilization. Washington, D. C., Government Printing Office, 1929. 52 p. (U. S. Department of Commerce.)

Among the many specifications and working diagrams are several suggestive for equipment and play apparatus for young children.

PERIODICALS REFERRED TO IN THIS BIBLIOGRAPHY

Childhood Education. Official organ of the International Kindergarten Union, the National Committee on Nursery Schools, and the National Council of Primary Education, 1201 Sixteenth Street NW., Washington, D. C.

Children, The Magazine for Parents (now called the Parents' Magazine), 353 Fourth Avenue, New York City, N. Y.

Child Study. Official organ of the Child Study Association of America, 54 West Seventy-fourth Street, New York City, N. Y.

Journal of the American Association of University Women, 1634 Eye Street NW., Washington, D. C.

U. S. GOVERNMENT PRINTING OFFICE: 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - - Price 5 cents